NORTHERN REGION OF NIGERIA

Annual Report on the Progress of Produce Inspection Service in the Northern Region of Nigeria for the year 1956-57

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Annual Report of the Northern Regional Produce Inspection Service, 1st April, 1956-31st March, 1957

FOREWORD

BY

THE HONOURABLE MALAM MOHAMMED MUSTAFA, M.H.A.,
MINISTER OF AGRICULTURE,
NORTHERN REGION

The Produce Inspection Service is responsible for the quality standards of our agricultural exports and I have no hesitation in repeating once again that the activities of the service are of vital importance to the prosperity of the whole community, for they not only protect our good name with overseas buyers, but ensure that the good and careful farmer obtains his just reward. In the season under review these standards were improved and I note that although adverse weather conditions caused a heavy fall in the production of groundnuts and cotton, many farmers benefited from the large increase in special grade groundnut and grade I cotton purchases.

2. The Pest Control Unit also plays its part, for losses of stored crops, which it endeavours to reduce, must in the long run be debited by the Marketing Board to the farmers. I have read with great interest of the improved techniques of the Unit and also of the assistance it has given to Native Authorities.

3. As the report says, "northernisation" is Government policy and it will be pursued with vigour, but progress will depend upon the supply of qualified applicants of northern origin for employment. I sincerely hope that many of our well educated young men will seek a career in a Service which has such an important part to play in the future of the Region.

Annual Report of the Northern Regional Produce Inspection Service, 1st April, 1956–31st March, 1957

STAFF

Senior Service

(*i*) *Postings: Kano Headquarters*

Director	Mr E. G. Harmer (on leave 11th September-31st January) Mr R. H. Simcock (acting)
Principal Produce Officer	Mr R. H. Simcock Mr D. C. Price (acting) Mr K. J. B. Champion (acting)
Senior Produce Officer	Mr K. J. B. Champion (acting) Mr F. E. N. Rose (acting) Mr A. Macdonald (acting) Mr G. R. C. Toogood (acting)
Senior Pest Control Officer	Mr D. C. Price Mr F. S. N. Rose (acting) Mr W. N. Gambrill (acting)
Pest Control Officer	Mr W. N. Gambrill
Administrative Assistant	Mr N. L. Braie Mr F. O. Chukwuma (acting)

Produce Inspection Areas:

Kano	Mr A. Macdonald Mr Annah (acting) Mr G. R. C. Toogood Mr M. J. van den Heuvel
Zaria	Mr H. B. Bett Mr R. G. Brereton
Gusau	Mr R. G. Brereton Mr H. B. Bett (supervising from Zaria) Mr D. B. Summers
Funtua	Mr H. B. Bett Mr R. G. Brereton (supervising from Zaria)
Gombe	Mr A. Macdonald
Lokoja	Mr G. C. C. Johnston Mr A Macdonald
Maiduguri	Mr M. J. van den Heuvel Mr A Antia (acting)

(*ii*) *New Appointments.*—Mr M. J. van den Heuvel was appointed as a Pest Control Officer (on secondment from United Kingdom Civil Service for 3 years) with effect from 20-9-56.

(*iii*) One officer was placed on the sick list for 9 days.

(*iv*) No officers left the service during the period under review.

(*v*) Mr K. J. B. Champion was promoted to Senior Produce Officer with effect from the 11th February, 1957.

Junior Service

2. (*i*) *Postings: Assistant Produce Officers.*—Fifteen Assistant Produce Officers were posted to Sub Areas during the period under review.

(*ii*) *New Appointments.*—Sixteen technical appointments and fourteen clerical appointments were made during the year under review.

(*iii*) *Promotions.*—Twelve promotions were made: one Assistant Produce Officer II to Assistant Produce Officer I; Two Produce Inspectors, Grade I to Assistant Produce Officer II; Seven Produce Inspectors, Grade II to Grade I; Two Second-class Clerks to Clerks, Class I

(*iv*) *Secondment.*—One cotton supervisor from Numan Division, Adamawa Province, and twenty-nine Cotton Examiners from Muri, Numan and Katsina Native Authorities were seconded to this service during the year; the total number of former Native Authority cotton staff now employed by the service is 112.

(*v*) *Left the Service:*—

One Assistant Produce Officer II; invalided
Six Produce Inspectors: resigned
Four Produce Inspectors/Produce Examiners: dismissed
Six Clerks: resigned
One Messenger: dismissed
One Nightwatchman: dismissed.

(*vi*) *Health.*—Fifty-two officers were placed on the sick list for a total period of 454 days.

General

3. (*i*) At the end of the year under review there were three vacancies within the establishment for Senior Service Officers; these vacancies were for an Accountant and two Produce Officers. Fourteen duty posts were filled. The Pest Control Unit was brought up to established strength by the appointment of a Pest Control Officer, on secondment from the United Kingdom Civil Service.

(*ii*) Recruitment of direct entries into the Assistant Produce Inspector/Produce Inspector grade was somewhat disappointing compared with 1955/56. Only sixteen appointments were made against thirty-six in the previous year, but this was due mainly to the lower standard of candidate applying for these jobs. A similar position appertains to clerical staff. On the 31st March, 1957, there were twenty-four technical and seven clerical Junior Staff vacancies.

(*iii*) On 1st November, 1956, ten Cotton Examiners were seconded from Katsina Native Authority; one supervisor and eleven Cotton Examiners were seconded from Numan Native Authority and eight Cotton Examiners from Muri Native Authority.

(*iv*) The following increases in establishment were approved:—

1 Assistant Produce Officer
3 Produce Inspectors, Grade I
58 Produce Examiners.

Supplementary establishment for forty-nine Produce Examiners was approved during the year.

Reduction in establishment: one Pest Control Officer.

(*v*) Northernisation of the Department is accepted policy and the following table gives the comparative totals of Expatriates, Northerners, and Non-Northerners, in each grade; includes the Pest Control Unit Establishment.

1956/57 (INCLUDES SUPPLEMENTARY ADDITIONS)

Ranks	*Establishment*	*Northerners*	*Expatriates*	*Non-Northerners*	*Remarks*
SENIOR OFFICERS					
Director to Executive Officer	17	—	13	1	3 vacancies
Junior technical staff	319	175	—	120	24 vacancies
Clerical staff ...	44	11	—	26	7 vacancies
Drivers; messenger; telephone assistant; watchman; stores assistant	32	23	—	9	—
	412	209	13	156	34

Unestablished labour force is fifty-four; forty-eight of whom are Northerners. The six Non-Northerners are artisans, carpenters and workshop blacksmiths, etc. This labour force is used exclusively by the Pest Control Unit.

ADMINISTRATION

4. (*i*) The former Maiduguri Sub-Area was converted to a full Produce Inspection Area from October, 1956. The new Area covers Bornu Province for the time being, but may be extended to take over part of Bauchi Province in future years.

A Pest Control Officer, combining the duties of his post with those of Produce Officer, supervised the Area during the 1956-57 season, and to maintain proper administrative control of the Area an acting appointment from Assistant Produce Officer grade was made on the transfer of the substantive Officer to Kano in March, 1957. The erection of a new Area office was completed during the year.

(*ii*) The Kano and Lokoja Areas had continuous Senior Service supervision throughout the year, except for a very short period in March, 1957.

(*iii*) The Gombe Area was again treated as a seasonal Station and was supervised for the 1956-57 season only. This policy will have to be changed in 1957-58, if the Senior staff position allows, as the administrative work alone in this area requires supervision all the year round.

(*iv*) At the end of the 1955-56 Buying Season and railment of that crop, the Produce Officer, Zaria, had to supervise three areas: Zaria, Funtua and Gusau. This extended supervision was for the period April, 1956, to late July, 1956.

This state of affairs leads to slackening of technical and administrative control and is entirely due to a shortage of staff within the establishment and the lack of leave reliefs in the establishment now that there are seven Produce Inspection Areas as against three before Regionalisation.

(*v*) Due to the lack of an Accountant the Senior Produce Officer was assigned much executive work in Headquarters, and thus the time this officer spent on field supervisory duties was drastically reduced. It is hoped to recruit an Accountant in the near future and thus ease the position from both the executive and technical points of view.

(*vi*) All Senior Officers of Headquarters toured to Areas and Sub-Areas during the crop season, as extensively as time allowed.

(*vii*) Housing of staff in Kano is still a problem and has only been solved on occasion by officers sharing quarters. There are nine duty posts in this Headquarters, Kano Produce Inspection Area and Pest Control Unit, and as at least eight officers are usually in Kano at any one time, the allocation of only seven houses/flats has led to acute embarrassment at times.

The officers posted to Lokoja, Gusau, Zaria and Gombe are now housed in permanent quarters; the houses at Zaria and Gombe being occupied during the year. The officer at Funtua is temporarily housed in quarters loaned by the Resident, Katsina. The officer posted to Maiduguri for the 1956-57 season was housed in the Non-catering Rest House; this caused much inconvenience to him and to travellers.

The Ministry of Natural Resources has been asked to support Departmental proposals for new houses in Kano, Funtua and Maiduguri.

Produce Inspection Stations and Markets

5. (*i*) The following table shows the number of gazetted produce Inspection Stations open during the year compared with 1955-56.

Product	1955-56	1956-57	*Increase/ Decrease*
(*a*) Groundnuts	55	56	+ 1
(*b*) Cotton *	284†	310†	+ 26
(*c*) Capsicums	9	9	—
(*d*) Cocoa	4*	10	+ 6
(*e*) Palm oil	4	10	+ 6
(*f*) Palm kernels	12	10	— 2
	368	405	Increase 37

*shown as 3 in previous annual report.
†Includes Benue Cotton Gazetted Inspection Stations.

(*ii*) The following Gazetted Produce Inspection Stations and cotton markets were opened or re-opened during the year.

Crop	*Province*	*Stations/Markets*
Cotton	Adamawa	Old Muri; Fufore
	Bauchi	Tashena; Dokoro; Kembu;
	Benue	Nasarawa; Gadabuke; Ibi; Iga-Okpaye; Oshibidu;
	Bornu	Buma; Fika; Talbari; Goniri; Ngaru.
	Ilorin	Tungan-Jatau
	Kabba	Olia; Etutekpe
	Kano	Kachako; Maigadu; Madachi; Dakayawa; Birkin; Kazaure; Kila; Gwaram
	Katsina	Sabuwa; Dan Sarai; Gangara; Kusada; Mazoji
	Niger	Ibeto; Womba
	Plateau	Yelwa
	Sokoto	Wama; Wanke; Dankigari; Bunza
	Zaria	Fanshanu; Gubuch Jere; Idon.
Groundnuts	Bornu	Damaturu.
Cocoa	Kabba	Ankpa; Egume; Etobe; Gerinya; Idah; Ogori; Yewuni.
Palm Oil	Kabba	Ankpa; Egume; Etobe; Gerinya; Idah; Ogori; Yewuni.
Palm Kernel	Kabba	Ankpa; Egume; Etobe; Gerinya; Idah; Ogori; Yewuni.
Capsicums	—	—

5. (*iii*) The provincial distribution of Markets and Inspection Stations during 1956/57 was as follows:—

Province	*Ground-nuts*	*Cotton*	*Capsicums*	*Cocoa*	*Palm Oil*	*Palm Kernel*	*Totals*
Adamawa ...	—	19	—	—	—	—	19
Bauchi	—	44	—	—	—	—	44
Benue	—	7	—	—	—	—	7
Bornu	13	15	—	—	—	—	28
Ilorin	—	1	—	—	—	—	1
Kabba	—	10	—	10	10	10	40
Kano	17	20	1	—	—	—	38
Katsina ...	7	55	1	—	—	—	63
Niger	—	30	4	—	—	—	34
Plateau	2	10	1	—	—	—	13
Sokoto	10	55	1	—	—	—	66
Zaria	7	44	1	—	—	—	52
Totals	56	310	9	10	10	10	405

Groundnuts

6. *Season.*—The 1956/57 Groundnut Buying season opened officially on Friday 9th November, 1956, in respect of Kano Area, and on the 23rd November, 1956, in respect of the Rivers Area Buying Stations. No decision had been reached on closing dates by the end of March, 1957.

7. *Special Grade Groundnuts.*—The scheme introduced by the Northern Region Marketing Board for the previous season was continued. Groundnuts of exportable quality containing not less than 70 per cent whole nuts by weight were purchased as Special Grade. The premium paid was 70*s* per ton above the Standard Grade price, an increase in the premium of 40*s* per ton compared with the previous season. Rivers Area groundnuts were automatically awarded the 70*s* premium as Special Grade nuts.

8. Special Grade groundnuts were inspected and sealed at the fifty-six Inspection Stations, and where time permitted this service was extended to a few important Buying Stations as well, with the object of preventing undue delay in grading and congested conditions in the main stations.

The method of sampling and weighing in the grading of these groundnuts as described in our previous report was found to be too slow to permit a large tonnage to be graded in the time available. It was decided therefore to grade by "eye". Inspectors were trained to recognise the physical appearance of special grade groundnuts, in heaps on the ground, in unsewn bags, and by sampling sewn bags by scooping. In the main this system worked reasonably successfully. To aid Inspectors and Buyers to recognise the physical appearance of Special Grade groundnuts several gross of samples in bottles were distributed to all areas.

The test deciding doubtful cases was as carried out the previous year, i.e., the sampling and weighing method.

The policy of retaining these nuts in storage until all standard grade nuts had been evacuated to port was continued.

9. *Groundnut Purchases.* —(*i*) Total purchases Kano and Rivers Areas:

1955/56	514,073 tons
1956/57	363,253 tons
Decrease of	150,820 tons

(Purchases for 1956/57 based on full period 1/4/56-31/3/57)

The large decrease can be attributed mainly to poor growing conditions; reports give the impression that there was also a small decrease in acreage sown.

Even so, the crop was some 24,000 tons larger than in 1954/55.

(*ii*) Comparative Purchases of Groundnuts—Kano and Rivers Areas—in tons.

(*a*) Kano Area (special and standard grades)

Province	1955/56	1956/57	*Increase*	*Decrease*	*Net Decrease*
Bauchi	7,800	6,916	—	884	—
Bornu	77,725	64,191	—	13,534	—
Kano	255,656	190,545	—	65,111	-
Katsina	75,688	39,561	—	36,127	-
Plateau	5,980	3,527	—	2,453	—
Sokoto	61,564	44,021	—	17,543	—
Zaria	8,511	4,572	—	3,939	—
Totals	492,924	353,333	—	139,591	139,591

(*b*) Rivers Area (All special Grade)

Province	1955/56	1956/57	*Increase*	*Decrease*	*Net Decrease*
Adamawa	15,006	6,537	—	8,469	—
Bauchi	1,440	758	—	682	—
Benue	966	90	—	876	—
Bornu	—	257	257	—	—
Kabba	8	3	—	5	—
Niger	461	150	—	311	—
Plateau	1,506	736	—	770	—
Sokoto	1,762	1,389	—	373	—
Totals	21,149	9,920	257	11,486	11,229

(*c*) Decrease: Kano Area	139,591 tons
Decrease: Rivers Area	11,229 tons
Total Crop Decrease	150,820 tons

(*iii*) *Purchases of Special Grade Groundnuts (Kano Area) in tons.*

Province	1955/56	1956/57	Increase	Decrease	Net Increase
Bauchi	207	1,335	1,128	—	—
Bornu	4,579	32,121	27,542	—	—
Kano	749	63,306	62,557	—	—
Katsina	692	13,379	12,687	—	—
Plateau	4,435	2,988	—	1,447	—
Sokoto	45	12,430	12,385	—	—
Zaria	14	1,880	1,866	—	—
Totals	10,721	127,439	118,165	1,447	116,718

(*iv*) Comparative Purchases in Grades for 1956/57 Season.

Special Grade (Kano and Rivers)	137,359 tons
Standard Grade	225,894 tons
Total Purchases	363,253 tons

Price

10. Naked ex-scale port of shipment prices for the 1956/57 season were:

	£	s	d	
Special Grade	46	0	9	per ton
Standard Grade	42	10	9	per ton

Prices at Gazetted Inspection Stations or Buying Stations were based on port price minus road and rail differentials. Minimum guaranteed prices at any Buying Station being £28-10*s*-0*d* per ton for Special Grade nuts and £25-0*s*-0*d* per ton for Standard Grade nuts. Buying prices were again subject to £1 Produce Sales Tax.

Inspection

11. (*i*) As in previous years a 10 per cent check test was carried out on all groundnuts evacuated to port or transferred to Oil Expressors in Kano. Mention has been made of the method of inspecting (grading) Special Grade nuts in paragraph 8.

The exportable standard of all groundnuts was raised to a tolerance of only 1.0 per cent extraneous matter, (including 0.2 per cent stones) as against 1.5 per cent (0.2 per cent stones) in previous years. This tightening up on extraneous content is in order to obviate a decline in the popularity of Nigerian Nuts with overseas buyers. There are still instances of buyers demanding quality discounts from the Marketing Board due to excess extraneous matter content. The whole nut content of Standard Grade was between 30 per cent to 70 per cent. Nuts with a content of less than 30 per cent whole nuts were rejected for export, on behalf of the Northern Region Marketing Board.

(*ii*) Routine storage inspections were carried out on all nuts awaiting evacuation to Port. Recordings of these inspections enable this Service to advise the Marketing Board on deterioration rates and type of storage most

suitable for a particular station, etc. From these recordings this Service is also able to advise on the payment of Extraordinary Expense and Deterioration claims submitted by Licensed Buying Agents to the Northern Region Marketing Board.

(*iii*) Comparative figures of groundnuts Inspected, Graded, and Railed, are given below. These figures include transfers to Oil Expressors in Kano and Bornu of subsidy nuts inspected and sealed at station of purchase. Figures are in nett tons.

Month	1954/55	1955/56	1956/57	*Remarks*
April	37,246	31,028	29,456	
May	32,509	28,520	41,406	
June	43,899	44,608	29,129	
July	30,527	24,835	28,411	Transfers to oil expressors for
August	44,888	29,842	51,598	period 1-4-56 to 31-3-57=
September	38,454	48,951	30,255	89,289 tons
October	42,690	29,701	20,833	
November	47,372	29,499	30,911	
December	43,034	62,338	39,506	
January	45,443	46,565	48,611	
February	38,042	35,871	34,871	
March	36,754	51,443	30,297	
Totals	480,858	463,201	415,284	Decrease of 47,917 tons

Quality

12. (*i*) *Table of Groundnut Analysis. April* 1956—*March* 1957.

Month	*Percentage Stone*		*Percentage Shell etc.*		*Percentage Total*	
	1955-56	1956-57	19555-6	1956-57	1955-56	1956-57
April	0.166	0.267	0.412	0.306	0.578	0.573
May	0.147	0.099	0.267	0.136	0.414	0.235
June	0.113	0.074	0.178	0.161	0.291	0.235
July	0.125	0.083	0.199	0.136	0.324	0.219
August	0.149	0.182	0.287	0.135	0.436	0.317
September	0.112	0.105	0.140	0.159	0.252	0.264
October	0.080	0.131	0.468	0.190	0.548	0.321
November	0.111	0.151	0.190	0.389	0.301	0.540
December	0.116	0.184	0.146	0.339	0.262	0.523
January	0.108	0.188	0.130	0.314	0.238	0.502
February	0.103	0.327	0.137	0.355	0.240	0.682
March	0.085	0.091	0.121	0.277	0.206	0.368
Total	1.415	1.882	2.675	2.897	4.090	4.779
Average	0.118	0.157	0.223	0.241	0.341	0.398

(*ii*) From the above figures it will be noted that the total average impurities are again higher compared with 1955/56 and previous years. Both stone and shell content show marked increases. The admixture of extraneous matter in Groundnuts has shown an upward trend in the past few years notwithstanding the use of a propaganda unit, which tours to most of the main producing and buying areas.

In an endeavour to counteract this trend, the new ruling regarding extraneous matter percentage was brought into force during the 1956/57 season, *see* paragraph 11 sub-paragraph (*i*). It is felt that the work of the large number of the new Assistant Produce Inspectors is not quite up to previous standards required, but it is hoped, with intensive on-the-job training courses, to improve the efficiency of staff and their inspection work.

Standardisation and Packing

13. Once again some areas report that unsound bags and poor marking caused much inconvenience to all concerned, especially at time of railment. However, the general overall picture is that there was probably some small improvement in these matters.

Standardisation was reasonably satisfactory and all railments were within the 'weight tolerance' laid down by the Northern Region Marketing Board.

Storage

14. (*i*) During 1956/57 Groundnuts were stored in 201 pyramids and twenty-six enclosed stores as against 328 pyramids and thirty-five stores in 1955/56, an accurate reflection of the smaller groundnut crop purchases during 1956/57.

All pyramid plinths and stores were inspected and approved before use. In permanent storage areas the use of groundnut husk has been strictly forbidden. All plinths and floors of stores are now covered with Sisalkraft paper before stacking commences. This method has reduced the incidence of pest infestation. All pyramids have a standard size base fifty-four feet square, and this fact enables all Licensed Buying Agents to build similar size pyramids, though there is no standard tonnage within any particular pyramid. Standardisation of open storage has enabled the Pest Control Unit to standardise equipment and methods of fumigation, spraying, and dusting. Standardisation also enables the Northern Region Marketing Board to issue standard sets of tarpaulins to its Agents.

(*ii*) At the beginning of April, 1956, there were 285,284 tons of the 1955/56 crop in storage at Railhead; at the end of March 1957 there were 165,326 tons of the 1956/57 crop at Railhead.

The last of the 1955/56 crop was cleared to Port in December, 1956. As crops are now cleared from Railhead in approximately 12 months, the preparation of storage facilities, including disinfestation, for the next crop is more easily carried out and this has helped to reduce the deterioration rate in stored groundnuts.

Railment

15. Rail evacuation was good during the year. Figures submitted by the Northern Region Licensed Buying Agents Committee show the following railment:—

1955/56 crop Groundnuts	244,083 tons
1956/57 crop Groundnuts	142,435 tons
Total Railments	386,518 tons

This figure is only slightly below the 1955/56 figure of 389,649 tons.

Deterioration

16. 514 tons deteriorated in 1955/56, and, although this is not much less than the 578 tons which deteriorated in 1954/55, it is a significant improvement because the 1955/56 crop was 147,000 tons larger. Deterioration figures are of necessity twelve months in arrears, as final figures cannot be computed until the crop is cleared to Port. Thus the 1956/57 crop figure will be included in the next report. This continued improvement in deterioration rates is the result of better storage control and quicker evacuation of crops to Port. Most of the deterioration was due to compression of the bottom layers of bags in pyramids, and it may well be that the possible minimum of deterioration has now been reached: a very satisfactory state of affairs which reflects on the efforts of all concernced.

Pest Infestation

17. A report has been written by the Senior Pest Control Officer and an edited version is contained in paragraph 43 onwards. During the year infestations of groundnuts by Trogoderma Granarium were as follows:—

April to December, 1956—1955-56 crop	9,874 tons
January to March, 1957—1956-57 crop	4,803 tons
	14,677 tons

The 1955-56 crop had the lowest infestation record of any crop since control started, namely 4.4 per cent as against the previous lowest figure of 10.12 per cent for the 1954-55 crop.

Groundnuts for Local oil Expression

18. Groundnuts released by the Northern Region Marketing Board to Oil Expressors in Kano during 1956-57 amounted to 89,289 tons, of which 55,039 tons were of 1955-56 crop and 34,250 tons were of the 1956-57 crop. These figures are based on records of inspection and evacuation from storage sites into the mills.

Groundnuts Ex Subsidy Stations

19. There were nine subsidy stations in 1956-57, the same number as in 1955-56. A total of 26,794 tons were inspected and sealed at these stations compared with 25,680 during the previous year. The 1956-57 tonnage was made up of 24,889 Special Grade and 1,905 tons Standard Grade nuts.

Rivers Area Uninspected Groundnuts

20. Total purchases for 1956-57 (period 1-4-56—31-3-57) were 9,920 tons compared with 21,149 tons during the previous year; a decrease of 11,229 tons. All these groundnuts were automatically declared Special Grade groundnuts.

The decrease is believed to be due partly to the mixture of some of the Rivers Area groundnuts crop with poor standard groundnut of the Kano groundnut area. As the Rivers Area groundnuts consist of up to 90 per cent whole nuts, it is advantageous to the Buyers to mix the nuts in order to produce more Special Grade groundnuts.

French Groundnuts

21. The following table gives figures of railments over the past three years. These nuts are not subject to grading inspection, but Produce Inspection staff at Kano, Kaura Namoda, and Gagarawa, have to check arrivals against certificates of origin. The Produce Officer, Kano, authorises railment after these certificates have been supported by Shipping Certificates. Storage Inspection is carried out and firms acting as Transit Agents are subject to Pest Control instructions relating to fumigation and other methods of control.

Month	1954-55	1955-56	1956-57	*Remarks*
April	3,220	4,918	3,424	
May	3,459	4,213	7,021	
June	2,857	4,456	6,303	
July	4,369	4,413	6,373	
August	2,068	4,447	6,357	
September	4,801	3,801	4,063	
October	3,616	6,093	488	956-57 compared with 1944-56
November	3,698	—	345	
December	5,674	8,622	6,790	
January	4,401	8,144	5,515	
February	3,403	8,144	8,923	
March	3,570	7,812	9,058	
Totals	45,136	64,781	64,660	Decrease of 121 tons.

Kano Laboratory

22. Analyses of Groundnut samples were undertaken throughout the year for Free Fatty Acid and moisture content; mechanical tests were affected to determine the ratio between whole and broken nuts. The number of analyses carried out were:

Mechanical	170
Chemical	170
	340

This figure is well below that of 1955-56 but is due to the lack of a leave relief for the laboratory technician and also to the fact that much time was taken up in preparing many gross of samples of Special Grade nuts which were issued, in bottles, to all Areas.

Cotton

23. Opening and closing dates of markets during the 1956-57 season were as follows:—

Province	*Dates Opened*	*Dates Closed*
Adamawa	21-12-56	14–21-3-57
Bauchi	7-12-56	21–28-3-57
Benue	4-1-57	28-3-57 and 30-4-57
Bornu	14-12-56	28-3-57
Ilorin	1-2-57	21-3-57
Kabba	28-12-56	30-4-57
Kano	30-11-56	28-3-57
Katsina (S)	14-12-56	28-3-57
Katsina (N)	30-11-56	28-3-57
Niger (S)	28-12-56	28-3-57
Niger (N)	7-12-56	28-3-57
Plateau	14-12-56	28-3-57
Sokoto	14to21-12-56	28-3-57
Zaria	21-12-56	14-3-57

Market Materials

24. These, as in the past, were prepared by the Produce Officer, Zaria and his staff. All cotton market boxes were distributed to Cotton Examination Staff at Cotton classes or through Area Produce Officers. Grades I and II were sealed in bags; Grade III unsealed.

Cotton Markets: Design and Construction

25. Thirty-nine permanent steel frame cotton markets were erected in time for use for the season. None of these structures is less than three stalls; and it appears economically worthwhile to carry on with the policy of providing more of these structures for markets of three stalls and upwards. The design of these markets is essentially the same as that of the traditional structure, and a great deal of the steel work is standardised so as to enable its use in the erection of any size of market.

The construction of traditional type markets was as usual carried out by the Native Authorities, and the construction varied from poor to very good. The smaller markets were usually better constructed than the larger ones.

Cotton Classes

26. Eleven cotton classes were held at various centres before the season opened, and lasted about four days.

Centre	*Produce Inspection Area*	*Dates*	*Lecturers*
Tsanyawa	Kano	19–23-11-56	P.O. Act. S.P.O. C.S.
Zaria	Zaria	3–10-12-56	P.O. Zaria C.S. Zaria
Kontagora	Zaria	10–17-12-56	C.S. Kontagora
Misau	Gombe ...	23–27-11-56	A.P.O. I Gombe and C.S.
Gombe	Gombe ...	23–27-11-56	A.P.O. I Gombe and C.S.
Numan	Gombe ...	10–14-12-56	P.O. Gombe and A.P.O. Gombe
Gusau	Gusau ...	27–11-56–6-12-56	A/Director and C.S.
Funtua	Funtua ...	23–27-11-56	P.O. Funtua, A.P.O. II and C.S.
Dutsin Ma	Funtua ...	19–23-11-56	A/Director, A/S.P.O., C.S. and A.P.O. II.
Bida	Lokoja... ...	26–11-56–1-12-56	C.S. Bida
Lokoja...	Lokoja... ...	17–22-12-56	P.O. Lokoja and A.P.O. II.

Buying Arrangements and Prices

27. (*i*) The following firms acted as Buying Agents for the Northern Region Marketing Board:

British Cotton Growers Association, United Africa Company, J. Holts, P. S. Mandrides, S.C.O.A., C.F.A.O., London and Kano Trading Company, G. B. Ollivant, Patterson Zochonis, C. Zard, Alhaji A Dantata and Sons. Alhaji Gagere, I. Musa Gashash and Bros., H. Hallowi, Olude Stores.

(*ii*) Licences to buy seed cotton were issued by the Director, and a total of 622 licences were issued to individuals buying for firms. Prices paid for cotton bought at Markets, after tax and deductions, were as follows:–

	s	*d*	
Grade I	5	9	*per lb*
Grade II	5	4	,,
Grad III	4	9	,,
Benue ungraded	5	4	,,

Staffing of Cotton Markets

28. The following table shows numbers of Native Authority and Produce Inspection staff who carried out grading and supervisory duties in cotton markets. These figures do not include any ranks above that of Produce Inspector Grade II.

	N.A. Staff		N.R.P.I.S. Staff	
P.I. Area	*Cotton Supervisors*	*Cotton Examiners*	*Produce Inspectors*	*Produce Examiners*
Funtua	7	59	—	10
Gombe	1	—	4	73
Gusau	4	62	—	—
Kano	—	—	1	25
Lokoja	1	23	3	—
Maiduguri	1	14	—	—
Zaria	4	85	—	—
	18	243	8	108

Five of the supervising Produce Inspectors II and III were former Native Authority Cotton Supervisors and the 108 Produce Examiners were former Native Authority Cotton Examiners.

Supervision of Cotton Marketing

29. Cotton Marketing was again closely supervised by officers of Headquarters, Produce Officers, and Assistant Produce Officers. These Officers were usually accompanied by Native Authority Cotton Supervisors who in the main did their job satisfactorily.

Standard of Work of Cotton Examiners

30. Generally the improvement shown the previous year was maintained. Closer supervision and another small crop undoubtedly helped towards this reasonably satisfactory state of affairs. It is very noticeable that where cotton examination staff have been seconded to Government service, the standard of work has improved. The worst standard of work was again found amongst staff in Sokoto and Katsina Provinces. This will no doubt always be so, due in part to the fact that most of the crop is brought to markets by middlemen and not the grower in these Provinces.

Purchases

31. (*i*) In the Northern Area 69,425 tons of all grades were purchased. Comparisons with previous years are:—

1954-55	94,745	tons
1955-56	77,335	tons
1956-57	69,425	tons

The decrease of 7,910 tons between 1955-56 and 1956-57 is believed to be due to (*a*) late planting, (*b*) lower rainfall in the far North, and (*c*) early Harmattan conditions. Four Provinces showed an increased tonnage:

Adamawa by approx. ...	621 tons
Bauchi by	4,228 tons
Plateau by	240 tons
Bornu by	405 tons

In the main cotton growing areas, however, production decreased:—

Sokoto by	2,969 tons
Katsina by	5,548 tons
Zaria by	3,133 tons

Other reductions were:—

Kano by	1,440 tons
Niger by	655 tons

(*ii*) The following table shows purchases for the months of November to March during the past three seasons, all figures in approximate tons and approximate percentages of the three grades.

Month	1954-55			1955-56			1956-57		
	N.A. 1	*N.A.* 2	*N.A.* 3	*N.A.* 1	*N.A.* 2	*N.A.* 3	*N.A.* 1	*N.A.* 2	*N.A.* 3
November	—	—	—	—	9	44	—	—	—
December	6,828	5,778	2,846	2,686	3,119	2,427	994	902	511
January	36,916	9,157	2,616	27,715	6,314	2,417	25,411	5,073	1,531
February	51,182	9,325	2,164	22,823	3,967	1,331	26,040	2,301	541
March	1,224	1,827	822	2,702	1,408	373	5,196	789	136
Total	60,150	26,087	8,508	55,926	14,817	6,592	57,641	9,065	2,719
Percentage	63.5	27.5	9.0	72.4	19.1	8.5	83.0	13.0	4.0
Total All Grades ..	94,745	—	—	—	77,335	—	—	69,425	—

(*iii*) Provincial distribution of purchases in 1956-57 were as follows: (approx. tons)

Adamawa	1,807	Katsina	17,086
Bauchi	14,507	Niger	3,921
Benue...	648	Plateau	1,292
Bornu...	1,429	Sokoto	17,958
Ilorin	88	Zaria	8,437
Kano	2,251	Total	69,424 (difference of 1 ton to actual purchase figures due to approximations)

Quality

32. The quality of the crop, from the figures submitted showed further improvement, but 83 per cent is now Grade I and this must be regarded as the maximum to be expected in any agricultural crop. However, it was noted by all supervising officers that there was little evidence of insect damage during the season, and this fact alone would help to improve quality. (*See* first table below).

The quality in the newer areas improved considerably and the figures in the second table below illustrate this fact; although a much larger crop was graded in Gombe Area the percentage of Grade I increased by 27.5 per cent.

Year	*N.A.* 1	*N.A.* 2	*N.A.* 3	*Tons all Grades*	
	Per cent	*Per cent*	*Per cent*		
1954-55	63.5	27.5	9.0	94,745 tons	*Northern Area*
1955-56	72.4	19.1	8.5	77,335 ,,	,,
1956-57	83.0	13.0	4	69,425 ,,	,,

Year	*N.A.* 1	*N.A.* 2	*N.A.* 3	*Tons all Grades*	
	Per cent	*Per cent*	*Per cent*		
1954-55	27.2	44.3	28.5	12,489 tons	*Gombe Area*
1955-56	39.4	36.6	24	16,110 ,,	,,
1956-57	66.9	21.1	12.0		,,

Downgradings

33. Total downgradings for the 1956-57 crop amounted to 11 tons 5 cwts as against 25 tons 7 cwts during the 1955-56 season.

The following table gives details of all downgradings in grades:—

	Grade I to			*Grade II to*		*Grade III to*
	II	*III*	*No. Grade*	*III*	*No Grade*	*No. Grade*
April to November	—	—	—	—	—	—
December	200					
January	4,607	1,500	—	1000	—	
February	12,420	2,000	100	276	—	
March...	2,597	1,200	—	—	—	200
1956-57	19,824	4,700	100	376	—	200

Total downgradings 25,200-11 tons 5 cwts.

Marketing

34. (*i*) The system worked very satisfactorily. There were no serious hindrances in purchasing all cotton offered at markets; the Buying Agents kept up a steady flow of cash and bags to their Market Buyers. The improvement of the previous year was well maintained in all areas.

(*ii*) It is obvious that fewer growers are themselves offering cotton for sale in markets. The bulk of the trade with markets is now in the hands of middlemen and this is a development that has to be accepted. However, this method of trade has its disadvantages regarding the grading of the crop. It is a natural fault for Examiners to grade larger parcels of cotton less well than small parcels. Also it is thought that pressure is being brought by these middlemen upon the Examiners to pass a high percentage as Grade I. In a year or so, drastic reduction in the number of markets may be considered. This would compel the middlemen to perform a greater service in the cotton marketing system. At present, they provide a small service for large profits. With their acceptance it should be possible to have fewer but larger markets.

Evacuation

35. Although many of the dry season roads were in a deplorable state of repair, evacuation of the crop from markets to ginneries was completed before the rains. With tonnages much smaller in the main producing areas, transporters were much keener for work than is usual and this fact helped to no small extent this year.

Ginneries

36. (*i*) The improvement of the previous year was maintained; there was adequate dunnage and cotton was covered satisfactorily before the rains. Produce Inspection staff were again used on dump duties to good effect.

(*ii*) It was expected that with the new ginnery at Vom and the smaller crops in most areas all cotton would be in the bale before the end of July.

Benue Cotton

(37) (*i*) Comparative Purchases are given hereunder—in tons.

Month	1955-56	*Remarks*	1956-57	*Remarks*
April	476			
May	197	1954-55 Season	582	1955-56 Season
June	380		546	
July	248			
August	9			
September				
October				
November				
December				
January	48	1955-56 Season	89	1956-57 Season
February	326		487	
March	792		810	
	2,476		2,514	Increase 38 tons

An increase of 38 tons over the year.

(*ii*) *Markets.*—Thirteen markets were opened during the season; the construction was as the previous year—a square shed 32 feet x 32 feet with entrances and exits at back and front.

(*iii*) The United Africa Company and John Holts were the Buying Agents for Benue cotton; the price paid was unaltered, at 5.4*d* per lb.

(*iv*) *Staff.*—There seems to be difficulty in retaining staff from year to year; all Examiners were again new to the job and difficulty is experienced in obtaining the required standard of work. However, considering the inexperience the work was carried out fairly satisfactorily by all concerned.

(*v*) *Quality.*—Some improvement was shown in the preparation for sale. It seems that growers are responding to the propaganda carried out in the area.

(*vi*) *Evacuation.*—As in the previous year, all cotton was evacuated by road to Lokoja. Evacuation from markets to Lokoja Ginnery was quite rapid and there were very small amounts in market dumps at the end of March.

Capsicums

38. Only 250 tons were graded in the Region during the year, at three Inspection Stations: Funtua, Bakori and Kano. As this produce must be evacuated and shipped within two months of inspection (if not re-inspection is enforced), most Buyers have Capsicums evacuated ungraded to Port and have inspection carried out immediately prior to shipment.

All capsicums graded were passed as Grade II.

Palm Kernels

39. (*i*) *Purchases and Gradings.*—A total of 12,686 tons were purchased and graded during the year, a decrease of 866 tons as against the previous year.

The following table gives comparative monthly figures in tons:—

Month	1955-56	1956-57
	Tons	*Tons*
April	1,264	1,164
May	1,577	1,502
June	1,866	1,708
July	1,530	1,398
August	1,105	1,443
September	763	883
October	858	799
November	892	994
December	1,040	691
January	717	618
February	786	691
March	1,154	795
Total	13,552	12,686

Decrease of 866 tons

(*ii*) *Marketing: Quality.*—The 1956 Palm Kernel Marketing Scheme closed on 27th December, 1956, and the 1957 Palm Kernel Marketing Scheme opened on 4th January, 1957. Prices were the same for both marketing years, £31 0*s* 0*d* per ton naked ex-scale port of shipment. Prices paid at Buying Stations varied with the amount of road, rail or river transport differential.

Quality was again satisfactory; there were no prosecutions taken against persons offering Palm Kernels for grading. Congestion at Lokoja due to shipping difficulties was experienced during the year, but at the end of March the situation had improved considerably.

Palm Oil

40. (*i*) *Purchases: Gradings.*—Comparative monthly figures are as follows:—

Month	1955-56 *tons*			1956-57 *tons*		
	Grade I	*S.P.O.*	*Total*	*Grade I*	*S.P.O.*	*Total*
April	638	84	722	714	114	828
May	848	67	915	1,055	68	1,123
June	857	50	907	611	60	671
July	388	86	474	161	78	239
August	17	35	52	—	75	75
September	—	45	45	10	41	51
October	1	63	64	4	47	51
November	2	62	64	3	104	107
December	23	95	118	8	92	100
January	66	23	89	30	11	41
February	53	9	62	14	9	23
March	416	39	455	122	44	166
	3,309	658	3,967	2,732	743	3,475

A decrease of 492 tons compared with gradings of the previous year; but there was an increase of 85 tons Special grade oil.

(*ii*) *Marketing: Quality*.—The 1956 Scheme closed on 27th December, 1956, and the 1957 Marketing Scheme opened on 4th January, 1957. The Agents purchasing oil are United Africa Company, and John Holts. The quality of the oil purchased was the same as before. It was free from any adulterant with up to 3.5 per cent free fatty acid, and 2 per cent of extraneous matter or water.

The prices for Palm Oil naked ex-scale at Port were:

(*a*) Special Grade ... ... £54 per ton

(*b*) Technical Grades:

(*i*) Grade I ... ... £45 per ton
(*ii*) Grade II ... ... £38 per ton
(*iii*) Grade III ... ... £30 per ton

Special Grade Oil was bought at Idah, and Technical Oil at Idah, Lokoja, Etoba and Ankpa.

The quality was most satisfactory, and there were no instances of oil found to have adulterants added to reduce free fatty acid content.

Cocoa

41. (*i*) *Purchases: Gradings*.—Comparative figures are given in the table below and show an increase of 257 tons over the previous year, despite a reduction in price of £50 per ton at Port.

Month	1955-56					1956-57				
	MC 1	*MC* 2	*LC* 1	*LC* 2	*Total*	*MC* 1	*MC* 2	*LC* 1	*LC* 2	*Total*
April	—	—	—	—	—	—	—	2	—	2
May	—	—	—	—	—	—	—	—	—	—
June	—	—	1	1	2	—	—	—	—	—
July	2	—	9	—	11	—	—	—	—	—
August	4	1	12	7	24	4	—	22	—	26
September	3	—	14	3	20	12	—	—	—	12
October	15	3	—	—	18	92	—	—	—	92
November	58	14	—	—	72	153	—	2	—	155
December	106	—	5	—	111	113	—	—	—	113
January	95	—	11	—	106	150	—	12	1	163
February	11	2	63	—	76	7	—	108	9	124
March...	—	—	16	2	18	—	—	20	8	28
	294	20	131	13	458	531	—	166	18	715

(*ii*) *Marketing: Quality*.—The 1955/56 season closed on 16th August, 1956 and the 1956/57 season opened on 14th September, 1956. The Buying Agents were again United Africa Company, John Holts, and Kabba Co-operative Produce Marketing Union Limited (KCPMU), and cocoa was inspected at Lokoja, Kabba, Okene, and Ogori.

The greater part of this crop was again Grade I and standards are being well maintained.

A total of 112 bags deteriorated during the year; ninety bags M.C.I to No Grade; twenty bags M.C.II to No Grade and two bags M.C.I to M.C.II. Long storage was the cause of this deterioration.

42. The following is a summary of prosecutions during the year:—

Cases Tried	*Acquitted*	*Pending*	*Convictions*
36	7	Nil	29

Fines

£196-0*s*-0*d*

PEST CONTROL UNIT

Staff

43. (*i*) *Senior Service.*—During the period under review the Senior Staff of the Unit was:

1. 1/4/56-31/5/56—Mr W. N. Gambrill, acting Senior Pest Control Officer.

2. 1/6/56-29/1/57—Mr F. E. N. Rose, acting Senior Pest Control Officer.

3. 30/1/57-31/3/57—Mr D. C. Price, Senior Pest Control Officer.

By the appointment of Mr van den Heuvel, Pest Control Officer, the senior establishment of one Senior Pest Control Officer and two Pest Control Officers was filled.

(*ii*) *Junior Service.*—Three temporary clerks were employed, two on contract, to fill vacancies, and the establishment of one first class clerk and three second or third class clerks has been filled. One Pest Assistant was employed to bring strength up to the establishment of six.

(*iii*) Three ungraded clerks and one Pest Assistant were taken on to strength.

One Pest Assistant became an Assistant Produce Inspector. Strength of other grades remained unaltered.

The labour force of fifty remained more or less the same throughout the year.

(*iv*) One driver and one Pest Assistant were posted Maiduguri to form the nucleus of a mobile Unit under the supervision of Mr van den Heuvel.

(*v*) *Health.*—Ten men were placed on the sick list for a total of fifty-seven days.

Administration

44. The Unit remains based on Kano, but mobile teams made regular inspection visits to all line stations to Nguru, Funtua, Gusau and Kaura Namoda. Other stations were visited less regularly and normally when reports of infestation were received.

With the full establishment of senior staff available it was decided to have a small self-contained mobile unit based on Maiduguri. The unit consisted of one Pest Control Officer, one Pest Assistant, one Driver, and three labourers. The equipment was a Bedford thirty cwt. truck, full spraying equipment, and materials for small scale fumigation. The team covered Maiduguri and Potiskum stations.

VISITORS

45. There were a great many visitors to the Unit, both lay and scientific, including the following personages:—

1. Minister of Trade and Industry 18–4–56
2. Minister of Commerce and Industry 18–4–56
3. Professor Wain of Wye College 7–6–56
4. Mr Whelan of Fisons (Pest Control) 30–6–56
5. Mr N. A. Martins, Acting Deputy Director, Marketing and Exports 5–9–56
6. The Governor-General of the Federation 28–11–56
7. Alhaji Isa Kaita, Minister of Natural Resources ... 8–1–57
8. Managing Director, (U.A.C.), Manufacturers of decorticating machines ... ... March 1957

46. *Insect Infestation* (General).—The main activities of the unit were directed towards the prevention and control of insects infesting stored groundnuts awaiting export. From time to time however, work was done for Native Administrations and other private concerns. In previous years the unit has experienced great difficulty in clearing up centres of infestation in groundnut storage areas; these centres were usually located in private stores holding guinea corn and beans etc. Due to non-co-operation of certain of the owners, it was not possible to effect control measures. Since the Produce Inspection Regulations did not cover this particular aspect, no enforcement was possible. In July 1956 all officers of the Produce Inspection Service were appointed Examiners under the Agriculture Ordinance No. 37 of 1950; this step enabled the Pest Control unit to turn its attention to infestation centres with more confidence. Up to the end of the year it was not found necessary to invoke these Regulations and there was a noticeable improvement in the attitude of the various private storekeepers and traders.

46. (*i*) The two principal insect pests of stored groundnuts were as usual *Trogoderma Granarium* The (Khapra Beetle) and *Tribolium Castaneum* (The Flour Beetle *or* locally the 'Groundnut Bug').

(*ii*) From observation, officers of the unit considered that the degree of infestation by Tribolium was considerably reduced in the 1956/57 groundnut crop. The improvement could be related to two facts:

(*a*) The extremely severe Harmattan conditions which inhibited insect activity.

(*b*) The most encouraging increase in the proportion of Special Grade groundnuts; on the 28th March, the tonnage purchased for export was 125,027 compared with 10,585 for the 1955/56 season.

(*iii*) Towards the latter part of the year infestations of *Trogoderma Granarium* were detected in Maiduguri and Funtua; hitherto both these stations had been regarded as 'clean' (at least as far as stored groundnuts were concerned), and the appearance of this pest in these stations was unfortunate. Efforts were made to trace the source of these infestations

but with no success. It is worth recording, however, that a quantity of groundnut cake purchased by the Bornu N.A. was found to be infested with Trogoderma in Maiduguri. The groundnut cake originated in Kano and was purchased at a time when cake was known to be infested.

(*iv*) The United Kingdom Ministry of Agriculture and Fisheries and Food (Infestation Control Division) continued to send the Department periodic reports concerning insect infestation of groundnut cargoes arriving in United Kingdom. It is evident from these reports that a steady decrease in Trogoderma infested cargoes is being achieved.

TROGODERMA GRANARIUM (GROUNDNUT)

	Number of shipments found infested on out-turn	*Percentage of shipments*
1953	27	21
1954	25	23
1955	14	13
1956	6	? (up to March 1957)

In addition to the above, two reports of infestation of groundnut cake from Nigeria were received; one of these reports indicated a very heavy infestation.

46. (*v*) Incidence of *Tribolium Casteneum* continued to be most prevalent; however, the United Kingdom out-turn reports do show a slight decrease over the 1955 figures:—

	Number of occurrences per 100 shipments
1954	85
1955	81
1956	(not available at time of writing)

It is considered that although *occurrences* are so widespread there has been an undoubted decline in actual numbers per occurrence. (*See* paragraph 46 (*iii*)).

INSECT INFESTATION (GROUNDNUT CAKE)

47. The rapid expansion of the Oil Milling Industry in Kano brought with it serious problems of insect infestation. The expressors concerned were most reluctant to believe that groundnut cake was just as liable to insect attack as were the groundnuts themselves. Store hygiene in respect of this commodity became seriously neglected. Warehouses were stacked to the wall and roof and no routine periodic inspections were possible—far less the application of control measures. The control of insects infesting groundnut cake was covered neither by the Produce Inspection Regulations nor the Agricultural Ordinance. In March, 1957, a meeting was held in the

office of the Director of Produce Inspection Service, at which representatives of all millers were present. An appeal for closer co-operation in this most important matter was made. By the close of the year full agreement on satisfactory storage and the application of control and prophylactic measures had been reached. It is hoped that once a routine has been established this hitherto dangerous centre of infestation will be completely eliminated.

Routine Control and Prevention

48. During the year three completely self-contained mobile spraying teams carried out routine prophylactic measures in the following stations:—

Kano	Kaugama	Funtua
Jogana	M/Maduri	Gusau
Zakirai	Garin Gabbas	Kaura Namoda
Dabi	Birniwa	
Ringim	Nguru	
Majia	Maiduguri	
Gagarawa	Potiskum	

The main insecticide used was 25 per cent B.H.C. (Lindane) at a rate of 40 m.s.f. per month. Towards the end of the year there appeared to be some indication that B.H.C. resistance was being bred, and a decision to change to D.D.T. was taken after consultation with W.A.S.P.R.U.

Increased use was made of 5 per cent insecticide dusting powder under Sisalkraft paper; At the end of the year an improved application technique was adopted with great success.

"Fogging' against night flying Tribolium Casteneum again commenced in the third week in March. Pybuthrin 6/60 emulsion concentrate together with 25 per cent B.H.C. was applied with the aid of the T.I.F.A. spraying machine.

Two fully equipped fumigation teams operated during the year and travelled as far afield as Maiduguri in the East and Kaura Namoda in the West. During the year under review a total of 6,924 lbs of Methyl Bromide was used and approximately 35,000 tons of produce treated. Towards the close of the year efforts were made to establish fumigation as a routine measure in Kano (to date it has been used solely to control Trogoderma) but it was found extremely difficult to keep to a planned programme. However, it was considered that routine fumigation has a future and new plans were being considered at the close of the year.

As mentioned above, help was given to various Native Authorities in controlling insect pests in corn stored for domestic consumption. One or two very serious Trogoderma outbreaks were successfully dealt with and it was hoped that more Native Authorities would approach the Department for help in these matters. The clearing up of such centres of infestation is obviously advantageous to both the Native Authorities and to this Unit.

Rodent Control

49. Activities in the matter of rodent control were greatly intensified during the year. Success attended these operations, and one Pest Infestation Assistant was specially detached to deal with control in Kano. Steps were being taken at the close of the year further to intensify efforts on this matter. Warfarin 5K Rodenticide was used in a bait consisting of oatmeal, sugar, and groundnut oil.

Sisalkraft Paper

50. As usual the Unit was responsible for ordering and distributing Sisalkraft paper to all L.B.A.s. A new system of distribution was tried during the year which enabled a greater measure of control to be exercised over this very expensive item. Despite periodic requests, L.B.A.s. appeared most reluctant to take proper precautions to look after this paper, and much of it was unnecessarily damaged. Experiments were laid down near the end of the year, which, if successful, should considerably reduce this serious wastage. (*See* Ruberoid below)

N.R.P.I.S. Fumigation Chamber

51. A great deal of use was made of the fumigation chamber at Nassarawa Gate. Many thousands of replaced groundnut bags were fumigated before re-use by the Agricultural Department. Second-hand Sisalkraft paper was also similarly treated. The use of this chamber was recommended to the Kano Oil Millers for disinfestation of groundnut bags before refilling with groundnut cake. This single factor should go a long way to eliminating infestation of this material since cake direct from expellors is completely sterile as far as insect infestation is concerned.

New Equipment

52. During the year much thought was given to the re-equipment of the Unit, with particular reference to the spraying teams. These plans were much advanced as a result of a visit to D.S.I.R. (PIL) at Slough and the Spraying Pool at Silwood Park by Messrs. Price and Gambril in June, 1956.

An order was placed for a Model 100 Universal Sprayer by Allman adapted to take two lances each with 100 feet hose, the whole unit to be tractor mounted. This material arrived early in the new year, but unfortunately it could not be assembled due to damage en route. Plans for re-equipping included the intention accurately to spray the sides of the pyramids above the eaves i.e. from 10 ft to a height of about 36ft. After extensive research W.A.S.P.R.U. were able to recommend that spraying should be confined to the *vertical* sides of pyramids only (i.e., up to 10 ft) since temperatures above that point inhibit insect activity. Due to this change the problem of spraying equipment was much simplified and measures were accordingly taken.

Main items of new fumigation equipment to arrive were four new fumigation envelopes of varying types, the latest one, the R.A. Brand 'Kooncover' was made of a material very similar to that used for 'cocooning' aircraft, etc., etc. The veteran P.V.C. on nylon cover has now fumigated some 46,000 tons of groundnuts and appears to be the best type of material for the job. Careful records were maintained for each cover so that the true worth of each can be eventually assessed.

A new 7 ton Bedford Lorry was purchased at the close of the year and plans were drawn up for a special type of body to be built, taking into account the special type of equipment which is carried by fumigation teams.

Training in Pest Control Duties

53. Because of complaints about insect infestation of cocoa the Western Region made plans to create its own Pest Control Unit. In early May, 1956, a number of Western Region Pest Control Operators visited Kano and were instructed in spraying and fumigation techniques by officers of this unit. The course lasted for nearly one month and all aspects of Pest Control peculiar to stored produce were fully explained.

Experiments

54. Active co-operation was given to W.A.S.P.R.U. in the setting up of field trials, and two most important experiments were initiated by the Unit during the year. Experiments dealt with during the year are detailed here under, together with a brief explanatory note.

(*a*) *Ctesiphon Stores.*—These two stores (built on the principle of the Ctesiphon Arch situated in Kano) have each a capacity of about 600 tons groundnuts. After filling, the doors were sealed with a plastic preparation which made them virtually gas tight. One of the stores was fitted with an air drying plant so that it was possible to maintain a constant humidity and recirculate any fumigant introduced into this store.

The purpose of the trials laid down in these stores was mainly twofold:—

(*i*) To study the effects of Free Fatty Acid set up in groundnuts stored at a constant humidity.

(*ii*) To study the effects of Methyl Bromide fumigation in virtually gas tight stores.

All practical work in connection with this trial was carried out by the Pest Control Unit. Results gained by the close of the year were most encouraging.

(*b*) *Neosyl Insecticide.*—Neosyl consists of finely ground particles of silica. Its action as an insecticide is purely mechanical and under laboratory conditions it gave extremely good results, so much so that a field trial was laid down in early 1957. Unfortunately results so far gained are not very promising due to a 'masking' effect by airborne particles.

(*c*) *Sodium Pantachlorophenate.*—The above material was used at Ringim as a deterrent to white ants. A pyramid base was chosen which was very heavily infested with this pest. A 2 per cent solution at fifteen gallons per 100 ft was applied. The results were assessed by W.A.S.P.R.U. and were found to be very good. The application of this material to heavily infested premises has now been adopted as standard practice.

(*d*) *Ruberoid Roofing Material.*—The replacement of Sisalkraft paper for use under stacked groundnuts has been under consideration for some time for two main reasons:—

(*i*) It is not 100 per cent moisture vapour proof, and

(*ii*) It is expensive in relation to the numbers of times it can be used.

Towards the close of the year a consignment of two and three ply bitumastic roofing material was received which may give the complete answer to the above objections; unfortunately the material arrived too late for a full scale field trial and only a small test was laid down. No assessment has yet been made.

(*e*) *Fumigation Sheets.*—The unit has sixty 30 ft x 40 ft fumigation sheets made of various materials, i.e. P.V.C. on Nylon, P.V.C. on Terylene, etc. There are six different types of sheet, and accurate and comprehensive records were kept on the performance of each one throughout the year. Serious trouble has been experienced in the past with the complete breakdown of fumigation envelopes (due in the main to climatic conditions), and it is hoped that at least one type of sheet will stand up to the Northern climate.

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